



• DEALER Dialogue



• GENESIS Receiver Test



• BORESIGHT Schedule

COOP'S SATELLITE DIGEST



FEBRUARY 15, 1985

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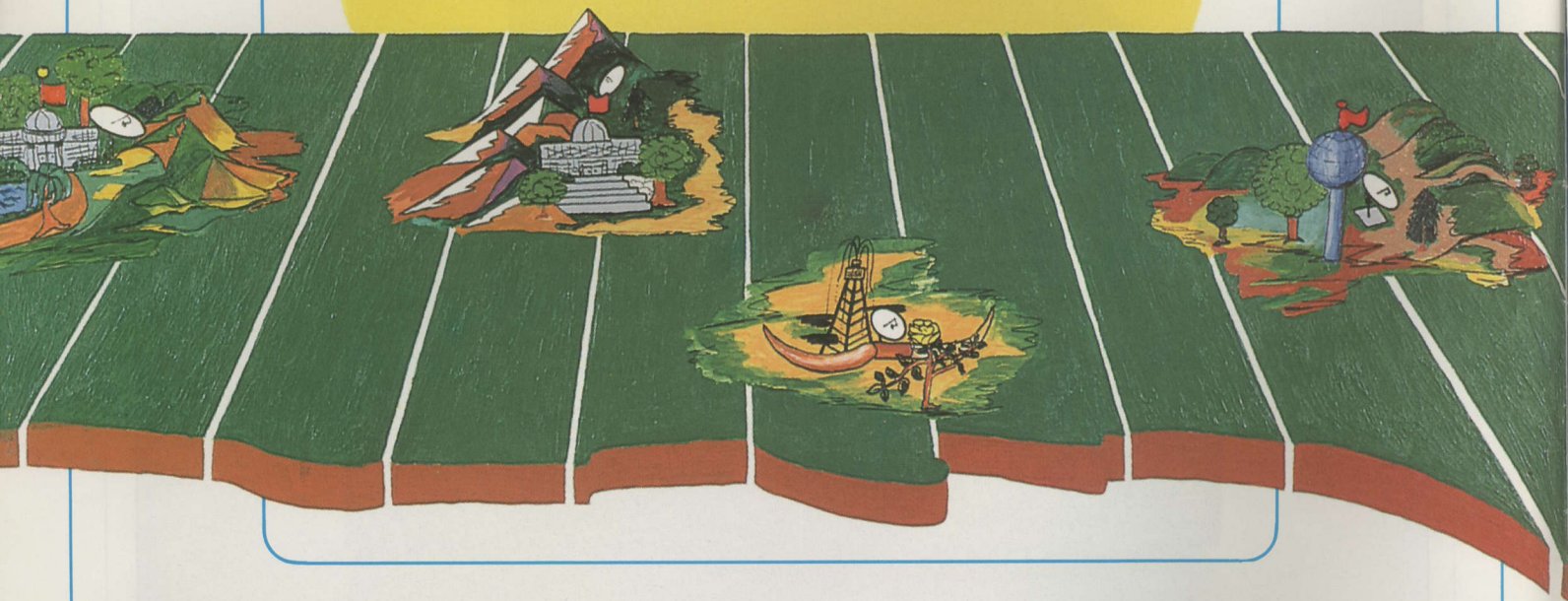
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FEBRUARY 15, 1985

DEALERS Talking

Dealers on a local level seldom talk; they are competitors and for the most part the industry is sufficiently immature that competitors won't walk on the same side of the street if they can help it. **And that's a shame.**

Dealers do talk at trade shows. They find themselves sitting next to a fellow dealer from Maine or Oregon and they strike up a conversation. Pretty soon they are sharing problems, and solutions. Dealers learning from other dealers. **And that is good.**

CSD wanted to promote greater 'dealer dialogue' between dealers. We wanted to get dealers talking with one another. And we thought a trade show might be the best place to do this. We also wanted to be able to report their 'dialogue' to you, other dealers.

During the November STTI trade show in Dallas, we rounded up two separate groups of between 8 and 10 dealers and in cooperation with **United Video** (the people who bring you WGN, KTVT and WPIX on satellite) we conducted some off-the-wall dealer dialogues. United had an axe to grind; they are interested in bringing forth, exclusively for home TVRO, a new type of satellite delivered service. They felt that by 'sponsoring' these dialogue sessions, showing dealers their new satellite product and asking for response, they could find out what portions of the proposed satellite product might best be

changed or modified in advance of 'launch'. I had a more selfish interest; since I am a firm believer in dialogue, I felt that if the dealers let their hair down and discussed their problems, we might find some solutions to marketing and service and promotion.

United got what they wanted (plenty of 'feedback') and I got what I wanted; plenty of 'open dialogue'. In fact it worked so well that we are considering doing something very similar during the forthcoming Las Vegas show. If there are some suppliers out there who like this concept, they would be well advised to talk with Carol Graba in our CSD offices about the scheduling now being put together.

We bring you the first portion of our 'Dealer Dialogue' here, this month. We promised the dealers who participated that their identity would be kept 'off the record' so we identify them by the region of the country they come from. As you read through this dialogue, we suggest that you make some mental notes about where you agree or disagree with the 'consensus' of the group. There are widely divergent points of view represented here and dealers who participated ran the gamut from small one-per-week suburban operators to a fellow doing more than 100 per month (with 17 employees). Then let us know what your own thoughts are, 'on' or 'off' the record, so we can continue to piece together our ever maturing world of TVRO salesmanship.

CSD/2 CALENDAR - Through March 31st

- | | | | |
|------------------|---|----------------------|--|
| FEB 21 | BORESIGHT , 9PM Eastern, TR16, F4; Obtaining SMATV programmer permission, 55 versus 85° LNA test, Rick Brown conclusion. | MAR 08-09 | Home Satellite Installation School and Dealer Seminar, Sacramento, Ca.; contact 916/441-6036. |
| FEB 21-22 | 'Plugging Into Cable TV'; how to use cable TV for non-profit organizations; Washington, DC, call 202/544-7272. | MAR 12-14 | Jerrold Technical Seminar, St. Louis, Mo. Contact Beth Schaefer, 215/674-4800. |
| FEB 26-28 | CATV Training Seminar, Atlanta; contact Howard A. Plattner 703/823-6522. | MAR 14 | BORESIGHT , 9PM Eastern, TR16, F4; More 'Mesh Antennas', distributor perspective. |
| FEB 28 | BORESIGHT , 9PM Eastern, TR16, F4; Mesh Antennas '85, Distributor perspective with Gary Kisting of SVS. | MAR 19-21 | C-Cor Cable Television Seminar, Chicago. Contact Deb Cree, 800/233-2267. |
| MAR 07 | BORESIGHT , 9PM Eastern, TR16, F4; More 'Mesh Antennas', Distributor view. | MAR 26-28 | Jerrold Technical Seminar, Calgary, Alberta; contact Beth Schaefer, 215/674-4800. |
| MAR 07-08 | URSSA TVRO dealer technical seminar, Memphis, Tn; contact 209/847-5996. | MAR 28 | BORESIGHT , 9PM Eastern, TR16, F4; Preview of SPACE/STTI show in Las Vegas. |
| | | MAR 31-APR 02 | SPACE/STTI trade show , Las Vegas. More than 500 booth exhibit spaces pre-sold, attendance may top 12,000. For information, contact STTI at 800/654-9276 or 405/396-2574 within Oklahoma. |

**COOP'S
SATELLITE
DIGEST**
/2



CSD/2 — Coop's Satellite Digest is published **twice per month** by West Indies Video, Ltd., a Turks and Caicos Corporation with corporate offices at WIV-TV, Grace Bay, Providenciales, Turks & Caicos Islands, BVI. Sales, editorial and subscription liaison offices located at Fort Lauderdale, FL (P.O. Box 100858, Ft. Lauderdale, FL 33310; 305/771-0505 between 9 AM and 4 PM eastern, weekdays). CSD/2 is issued on the 15th of each month as the mid-month companion to CSD which has been issued on the 1st of each month since October 1979; the 'birth' of home TVRO. CSD/2 is combined with CSD, a total of 24 issues per year, for all domestic (U.S.) subscriptions and is also available **optionally** for CSD readers outside of the USA. Additionally, CSD/2 is provided **free-of-charge** to all Dealer Members of SPACE, the international trade association of TVRO, upon request from such dealer members. CSD/2 is also a part of the 'TVRO Dealer Starter Kit' provided free to aspiring TVRO dealers who learn about TVRO from Coop's monthly column in **Radio-Electronics** magazine. CSD subscription rates are \$75 per year, 24 issues, for all US subscribers or where US zip-codes apply; \$85 per year (US funds) for Canada/Mexico; \$100 per year (US funds) for others. All copies sent via 1st-class AIRmail. West Indies Video, Ltd. is a 'Dealer-Pioneer' class member of SPACE. Copyright © 1985 by Robert B., Susan T., Kevin P. and Tasha A. Cooper.



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DISTRIBUTORS

(The) **ANTENNA HUT** (2141 E. Silver Springs Blvd., Ocala, FL 32670; 904/629-1436) is now a stocking distributor for MSE brand LNAs. 40 dB gain LNAs between 50/55° and 80 (+)° are available in quantities from 1 to 100 (+). The Antenna Hut also stocks Odom 'wire mesh' antennas, fiberglass dish antennas (Odom, AFC), mounts, actuators, feeds and Intersat receivers plus Chaparral feed devices.

BROOKS SATELLITE, INC. (Aberdeen, NJ) has awarded another trio of 'franchises' for 'The Satellite Store™'. John Perides and John Tobin are scheduled to open their Brooks store this month in **Hammononton, NJ**; serving Atlantic, Camden, Gloucester, Salem, Cumberland and Cape May counties in southern New Jersey. Bill Christian and Joe Policastro intend to open a Brooks store in northern New Jersey, probably in the **Somerville** area, serving Hunterdon, Somerset, Essex, Passaic, Bergen, Sussex, Warren, Morris, Hudson and Union counties. Albert S. Pitts will operate the **Philadelphia** area Brooks store from a location in the western suburbs, later in 1985. His market area will include Philadelphia proper plus Delaware, Chester, Lancaster and Berks counties.

Brooks also recently completed their first 'Satellite University'™ training session; a five-day course held in the firm's Aberdeen, NJ headquarters for management and technical personnel from the first six Brooks franchises.

FREEDOM SATELLITE SYSTEMS, INC. (505 West Hillsborough Ave [3A], Tampa, Florida 33603; 800/237-4260, or, 800/282-7314 within Florida) is also in the franchise store business with 14 franchised stores now in and operating and more on the way. Freedom's **Chuck Harder** began in the TVRO business by molding fiberglass dishes in a Tampa warehouse in 1982. From that he opened a retail center which has grown to a \$200,000 per month business. Franchising began this past October and the next ten franchise store units came on line through the end of January.

SATELLITE SPECIALISTS INTERNATIONAL (Dave Fredrick or Wayne Gaines at 601/226-6804) is now the exclusive Canada/Mexico/US manufacturer's representative for MSL/Micro Scientific Labs, Inc. MSL builds TVRO test equipment and recently introduced an installer's meter for TVRO.

SATELLITE VIDEO SERVICES, INC. (RR#1, Box 85-S, Paul Saxe Road, Catskill, NY 12414; 518/678-9581) has added the **Houston Tracker** line of antenna actuators and controllers to their product line-up. Tracker 2, 3+, 4+ and 4 super-plus are available with Saginaw acme or Saginaw ball actuators. SVS also handles the complete line of Uniden, Luxor, Intersat, Conifer, M/A-Com and Winegard TVRO products.

ANTENNAS/Products

CHANNEL MASTER (Division of AVNET, Inc., Box 1416, Smithfield, NC 27577; 919/934-9711) has introduced their first 'see through' or **mesh antenna** product. The four-petal design perforated aluminum dish is manufacturer certified to function with 2 degree satellite spacings at 4 GHz. The dish uses .125 perforated material and a unique four-legged support for the feed which Channel Master claims improves the positioning accuracy of the feed relative to the dish's surface. Color is black and weight 105 pounds. Distribution is through Channel Master distribution centers in some 400 cities in the USA.

R.L. DRAKE CO. (Miamisburg, Ohio) has introduced a new low noise amplifier. Model 2574 is rated at 'better than 100°' and operates from a 15 volt DC power source. Suggested retail price is \$195.

ODOM ANTENNAS, INC. (P.O. Box 1017, Beebe, Arkansas 72012; 501/882-6485) has announced a new distributor floor planning **financing program** backed by I.T.T. Commercial Finance Corporation. The program is intended to give distributors an additional 30 to 60 days of 'leeway' to allow them to take advantage of quantity discounts for antennas and related products and to save money by realizing greater shipping efficiencies with larger shipment loads.

ORBITA TECHNOLOGIES CORP. (21 West 58th Street, New York, NY 10019; 212/371-2335) announces a pair of high performance specialized receiving terminals for broadcast quality (54 dB signal to noise ratio) reception from the **Russian 'Molniya'** series non-Clarke orbit satellites. A 16 foot terminal with a proprietary X/Y mount system, full SECAM video processing, d-CYBERIA™ audio

NEW
PRODUCTS/
SERVICES/
EVENTS

FOCII SQUAWKER



NSL TWEAKER II



PERFORATED .125 Aluminum by CM

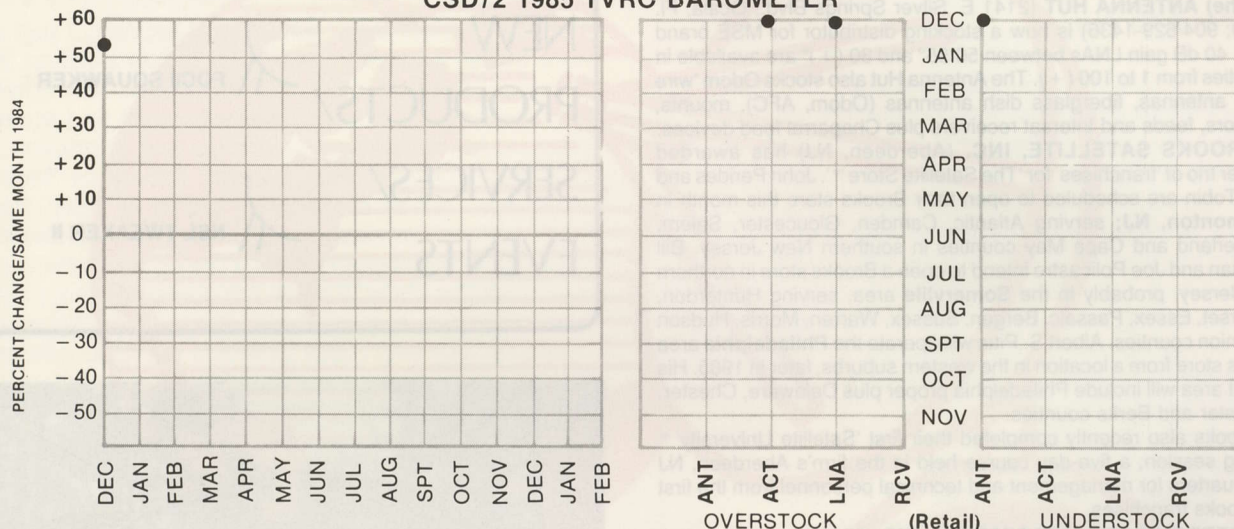
decoder sells for \$56,500 as a turn-key installation. A smaller 11 foot terminal with the same electronics package sells for \$47,775 turn-key installed. Columbia University installed the first such system this past fall (see **CSD** for December 01, 1984).

TOKI/Canada (#18-11151 Horseshow Way, Richmond, BC V7A 4S5, Canada; 604/272-5282) announces the availability of their new **'Toki-Luly'** 9 foot Portable (TVRO) antenna. The TA-900 antenna collapses into an easy to carry 'umbrella' format like the original Luly antennas introduced to the industry in July of 1980. The antenna assembles to a movable tripod mount, uses a durable reflective-mesh reflective material and a Cassegrain type feed. The primary market for the product, according to Toki, is recreational vehicles and TVRO dealer demonstrations/site testing. Weight is approximately 25 pounds.

ANTENNA Controllers

BEACH CRAFT ELECTRONICS (701 Collier Street, Hannibal, Missouri 63401; 314/221-4146) has introduced their **PSL III programmable motor drive** for the TVRO market. This is a 16 position

CSD/2 1985 TVRO BAROMETER



THIS REPORT: CSD/2 routinely surveys approximately 300 TVRO dealers each month to determine (1) how business for the last complete (calendar) month compares with the **same month** in 1984; (2) whether four primary equipment items were in dealer 'overstock' (i.e. too many in-house) or 'understock' (i.e. supplies dangerously low at retail level). This serves as TVRO's "industry barometer" of equipment trends at the retail/dealer level.

PIPELINE Analysis:

The 'barometer chart' shown here is designed to serve as an 'equipment pipeline' early-warning indicator for OEMs, distributors and retailers in the industry. CSD renewal notices now solicit this data from **qualified readers** who are an active part of the equipment pipeline process. The data shown is for the last complete month prior to publication; i.e. **February 15th** CSD/2 reports on **December 1984** as the data was compiled during January. This data is updated with

each issue. **ANTennas**, **ACTuators/controllers**, **LNAs** and **ReCeivers** are charted at the retail (dealer) level. We also solicit information on the new products or product lines **ADDED** to the retail selling mix, by dealers, during the same 30 day selling period; an indication of OEM progress in expanding their distribution base. The most oft-cited products added by dealers during December (1984) were:

- (1) Uniden 1000, Amplicon receivers;
- (2) Drake actuators, Raydx antennas.

programmable locator using a potentiometer for sensing, has end of limit programmable stops, and interfaces to a 36 volt DC drive unit. Beach Craft claims that a new 'dual detector circuit' results in 'precise sixteen channel positioning'.

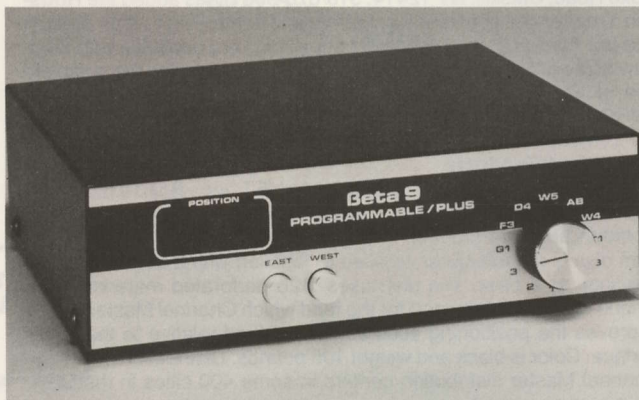
LAUX COMMUNICATIONS, INC. (4460 South Lake Forest Drive, Suite 218, Cincinnati, Ohio 45242; 513/733-1500) announces a pair of new '**Beta Series Antenna Positioners**'. The Beta-9 Digital Plus is an east and west positioner with programmable electronic limits, a 3 digit LED display to signal the user where the dish is, and a parental 'lock out key'. The Beta-9 Programmable Plus is a 12 position memory unit with a manual east and west override capability. Both units utilize Saginaw Actuators and there is a 24 month warranty on the controllers.

SPECTRUM Division of Y.E.S., INC. (3200 Sunnyside Avenue, Burlington, Iowa 52601; 800/553-2644 or 800/582-0020 inside Iowa) has introduced the 'Spectrum MCIII' **antenna positioning** system. The controller has five programmable memory positions plus a manual 'go to' system. The system uses both digital and analog circuitry and has a rear panel circuit breaker protection system to prevent equipment overload.

CHANNEL ONE (79 Massasoit Street, Waltham, Ma. 02154; 617/899-1025) has created a **motor driven mount** system for the Prodelin 4.6 or 5 meter prime focus dishes. The system is said to be 'easy to install, requiring no special equipment (such as a crane)' and comes with a one year limited warranty and 30 day money back trial period. Microprocessor controlled with '91 memory slots' (memory loss protection), the controller has digital display and polarization rotation control as well. A pair of 36 VDC Saginaw units provide simultaneous azimuth and elevation drive. Price is \$3900.

SYSTEM/Bits and Pieces

CWY ELECTRONICS, INC. (P.O. Box 489, Lafayette, Indiana



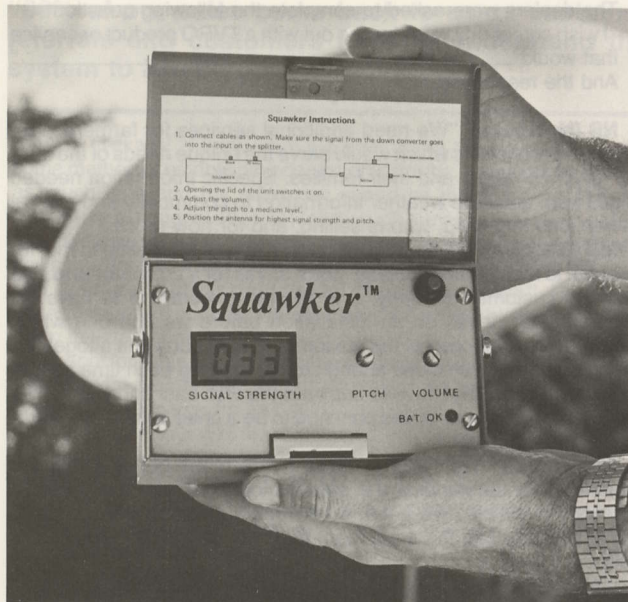
12 POSITION MEMORY from Beta-9/Laux

47903; 800/428-7596 or 800/428-7596 in Indiana) has an alternate to sealing TVRO connectors and connections with tape, plastic sealant or Coax Seal. Originally designed for sealing fiber-optic connectors, **Synco Gel** is totally waterproof and it will not harden, drip, melt or separate. It comes in a 3 ounce tube. **Barrier Cote** is another new similar product which comes in a unique aerosol pressurized can. It is sprayed directly on surfaces and connectors to prevent oxidation and corrosion.

CZ LABS (P.O. Box 95, Garnerville, New York 10923; 914/947-1554) has a new crimp-on type N connector for RG-213 or RG-214 cables (one size fits both), plus a new F to N adapter and a double-male right angle N adapter. The double-male right angle allows the installer to attach LNA mounting downconverters at an offset angle

with a single fitting rather than having to use a pair of fittings to make the transition and get the right angle.

FOCII ANTENNA SYSTEMS, INC. (2730 SW 57th Street, Topeka, Kansas 66609; 913/862-2703) has introduced an 'audible' TVRO antenna alignment tool; the 'Squawker'™. This alignment tool has a three digital LCD display which corresponds to the relative signal level received by the dish through the 70 MHz OR block downconverter IF line. A novel feature is that in addition to the visual numerical display, a tone is emitted from the box. The frequency of the tone goes up (and down) as a function of signal strength; more signal means a higher frequency tone. Price on the new alignment tool is \$169 dealer net.



VISUAL/AUDIBLE/lid closing shut off from Focii

LSE/Labor Saving Engineering has a new address; 110 Crocker, Avoca, Iowa 51521. The firm, formerly from Omaha, builds a satellite dish installation tool known as the 'Satellite Crane'. Their new telephone number is 712/343-6676.

MSL/MICRO SCIENTIFIC LABS, INC. (4719 South Cobb Drive, Smyrna, Georgia 30080; 404/435-8630) has a pair of new TVRO alignment and test units. Model 600 SP-II is a lower priced alternative to the DR-601-A color test set. All steel construction, the 14 pound package does LNA, polarizer, dish and dish tracking testing as well as site surveys with an internal power supply. A 3.5" black and white monitor is built-in along with an accurate field strength meter. Dealer net is \$795.

The **Seeker 2000** is a shirt-pocket carried antenna positioning and peaking test meter with a linear analog meter **plus** an audible (tone) indicator of maximized signal strength on the 70 MHz line or 'some' BDC (lower frequency) lines. Price is \$99.95.

PRECISION SATELLITE SYSTEMS, INC. (715 Grove Street, Clearwater, FL 33515; 800/HOT-DISH) has a new set of 'Uni-Link' LNA cables in both RG-213 and RG-214 formats. Lengths in standard-stock are between 14 inches and 14 feet and other special-order lengths are available. Cables are hand soldered, crimped and weatherproofed as well as connector covered with heat shrink tubing. Each cable is quality-checked prior to shipping.

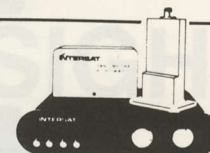
NORTHWEST SATLABS (806 NW 4th Street, Corvallis, Oregon 97330; 503/754-1136) has responded to the need for improved industry test equipment by introducing 'Tweaker II'™. This unit features a wide band amplifier which allows it to be used with any TVRO IF system operating between 50 and 1500 MHz (including all but the high end of Winegard IFs in the present VDC state). The metering has both an analog **and** LCD digital presentation with nighttime illumination for the LCD display. Twin 9 volt batteries run the unit (one and a spare). In

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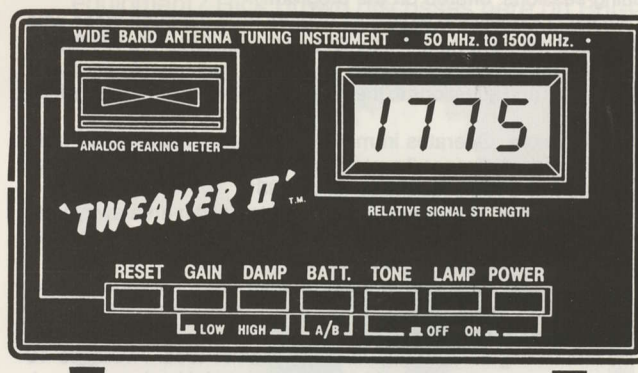
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addition to the visual displays, there are twin audible 'displays'; a 600 hertz (nominal) tone rises and lowers in audible frequency when the signal level goes up and down. A two-minute spaced tone 'beeps' to remind the user the power is on, as a safeguard against overnight battery failure. Options include a recharger for NICAD battery use and a weather/water proof nylon case with a 'window' for viewing metering functions in wet conditions.



TWEAK IT/ Peak It 'Tweaker II'

QUANTEC INTERNATIONAL, INC. (1820 South 3594 West, Salt Lake City, Utah 84104; 801/973-9500; 800/722-7425) has an unusual (*) answer to sharing a TVRO receiver with multiple TV receivers in the home. Rather than all of the 'fuss and bother' of running cables from the TVRO receiver to other receivers in the same home, they have created **VideoCaster**; a 'wireless rebroadcaster'. Originally designed to allow a VCR owner to pipe the channel 3 or 4 output into the unit,

NEW PRODUCTS/ continues page 22

DEALER DIALOGUE

GETTING Acquainted

Dealers, on a local level, don't talk to one another much; for the same reason that OEMs making receivers don't converse very often. They are in competition to one another. Yet dealers have much to say, and exchange, and for this reason many dealers find shows to be an excellent opportunity to learn more about their business from fellow dealers.

At the Dallas STTI Show, CSD sponsored a pair of dealer dialogue sessions along with **United Video Company**; the people who transmit WGN, KTVT and WPIX on satellite. We invited dealers, through CSD, to participate. We asked them to give us a couple of hours of their time in exchange for the opportunity to learn about some new and exciting 'services' to be available on satellite during 1985.

United ran the dialogue sessions and the participating dealers were asked to exchange views and opinions on a wide range of dealer related subjects. Each dealer had the opportunity to input the sessions and raise questions for discussion.

As we reviewed the tapes of these sessions it became clear to us that dealers talking was an important, missing ingredient at present trade shows. **Dealers need the opportunity to hear** how other dealers approach problems that are often common to all. We suspect that after this series 'airs' here in **CSD/2** that those who run shows will agree that this type of session serves some very important functions and at future shows dealer-input will become a greater portion of the 'training sessions' offered on the program.

We won't identify the individual dealers here although those who participated will have no difficulty finding themselves. We will simply 'locate' the dealers geographically so that you will be able to equate their answers and questions to the type of TVRO customer base which they serve.

- 1) **PD/Texas**. Operates in metropolitan area market away from big cities. Averages 2 systems per week of which 90% are rural and has been in business since 1981.
- 2) **MW/Texas**. Operates in smaller metropolitan area away from big cities. Averages 9 per week of which 65% are rural and has been in business 18 months.
- 3) **TH/Texas**. Operates in major market area. Averages 2 systems per week of which 100% are urban and has been in business 6 months.
- 4) **MM/Georgia**. Operates in major market area. Averages 10 systems per week of which 60% are rural. Has been in business 4 years.

DIALOGUE Definitions

- A) **'8 per week'** indicates that the dealer was averaging 8 systems per week, sold and installed, at the time of the dealer dialogue.
- B) **'Urban market'** indicates an area where cable television service is available to potential customers.
- C) **'Rural market'** indicates customers who live where no cable service is available.

"WE need additional services for farms . . . who is buying, who is selling, and for how much . . ."

- 5) **NB/Nebraska**. Operates in rural area. Averages 8 per week of which 85% are rural. Has been in business 1 year.
- 6) **LR/Texas**. Operates in rural area. Averages 2.5 per week of which 95% are rural. Has been in business 18 months.

QUESTION One

The dealers were asked to complete the following question:
 "I wish somebody would come out with a TVRO product or service that would _____."
 And the responses.

NB (Nebraska)/ "We need additional services for farmers, specialized transponders which would serve the unique needs of the farm and ranch operators and their families. Specific information needed ranges from accurate weather information to commodity and market activity; who is buying, who is selling, and for how much."

MM (Georgia)/ "Not require service! It is very frustrating to me, for instance, to replace and replace motor drives for a customer **and still have** the customer unhappy. It is still not uncommon to have six different motor drives on an installation before we find one which works to the satisfaction of the customer. If they don't quit altogether, they fail to come back close enough to the satellite each time so that the customer does not have to fine tune the dish east and west to get the best picture. Motor drives continue to be a chief source of frustration to our business."

TH (Texas)/ "We need something which will better assist the customer in understanding the satellite locations and the program selections available. We have more trouble teaching the customer how to properly use the equipment than we do with the equipment itself."

"I found the easiest way to do this is to have a person from my staff go to the customer's home a day or two days **after** the system has been installed and they have accepted the system. We find that people need a day or two after their first indoctrination to get somewhat used to the controls and the functions. There are two hurdles here; **first**, learning what all of the controls do, and next, making those controls work for you to bring in the greatest selection of programming. **You can't teach a customer both at the same time.** And you can't teach them how to get best use out of the system until they know how to use the basic system and controls."

"We ask the customer to write down a list of questions as they use the system for that first day or two, and when we visit with them at that time, we won't touch the controls; **we make them do it** and then if we see them not using the system to its best capabilities, we offer advice on how they can better use the system."

"Virtually all of our sales, I'd say 80% or more, come from customer referrals. It is very-very important to us that our customers like the system and they can't if they don't understand how to use it."

"We find that people have a threshold of excitement period, usually the first two to four weeks. In that period of time, they are almost totally wrapped up in their new TVRO system. Eventually, like any other 'appliance', it becomes part of the family. But initially, it is something which they dwell on and which they exude great excitement over. That's the period of time where they drag friends and relatives in to see it **and that's where we get our best referrals.** So we want them to fully understand the machinery and the system during that period of time. Anything that can aid us in this period of time would be very helpful to us."

"We contract out our installations. I build into the installation one hour's time for the contract-installer to explain the basic equipment functions. Then we build into the system-costing a follow-up visit, in say two days, where a member of our staff spends as much time as required, but usually between one and two hours, going over the operation and use of the system in greater detail."

"There is nothing more frustrating than to have a new high tech appliance, such as a computer or a TVRO, and not feel comfortable

with its use. People cannot enjoy, and talk enthusiastically about, a new appliance which they are uncomfortable with. I think this is very important to the retailer.

"In terms of time, this may cost our firm an extra \$30 to \$40. But in actual fact, we save several times that because when we do finally leave, **the customer** can program the controller, he and/or she understands minor glitches in the system, and we avoid those frustrating service calls that start out 'Please come by and check our system, we THINK something is wrong . . .'"

"80% of our sales come back to us as customer referrals and customers have to understand the system to like it . . ."

MW (Texas)/ "I think what we need more than anything else is some method of establishing **dealer credibility**. For example, I spend as much time and my salesmen spend as much time convincing customers that signal does not fall through a mesh dish than anything else! We have to put up with this type of nonsense because the dealer down the street has told them '**you don't want a mesh dish because half of your picture is going to fall through the dish!**'. Now this is not as funny as it sounds; I'm the newer kid on the block and the guy down the street has been an established Curtis-Mathis dealer in that same spot for 21 years. So HE is the established guy and what he says carries more weight than what I say, even if I have sold ten TVRO systems to everyone he has sold.

"What I am saying is that between that type of mis-information, or downright lies, and the guy who sells systems out of his garage on weekends, what we need more than anything else is credibility. And you know what happens; I get frustrated some days and I am tempted. I admit I am tempted to change our whole way of doing business; I actually start wondering whether we might get more sales if we could created the best 'story line' and we would start 'talking faster'. And it bothers me that I even find myself considering such an option because that's not how good, sound businesses are built. It IS very frustrating!

"I know you don't want to sell by telling people what it is you think **they want to hear** because that just creates problems for you later on down the road. I've had a potential customer sit there and say to me, '**Look, I don't know who to believe**'. You get the shopper who comes to you, then he goes to the shop down the street and then the one across town and he, the customer, gets very-very confused. I honestly believe that the industry, all of us, are losing customers because of this type of thing. People who want to buy will not buy because they are afraid to buy; they don't know who or what to believe."

TH (Texas)/ "I think that is an interesting point. And while I don't know how we would measure this nationwide or even here in Texas, I do know that we have lost customers not to other dealers but just to being turned off by all that they have heard."

MW (Texas)/ "It is not worth it to them to continue trying to decide. They get to the point where they don't know who to believe or even what to believe. **So they forget about it and pay their cable for another month!**

"Here's the really sad part. They are getting this mis-information from **other dealers**. The competition is so severe that dealers will say **ANYTHING** to get a sale. They'll make up stories about their equipment and your equipment. They believe anything said to them by their equipment salesmen, and make no attempt to verify that what they are repeating is true. **A retail customer who shops around is really at a disadvantage** because in shopping around they assimilate so much erroneous information that there is no way they can sift the truth out.

"I am in a very unusual market situation. I live in a county with

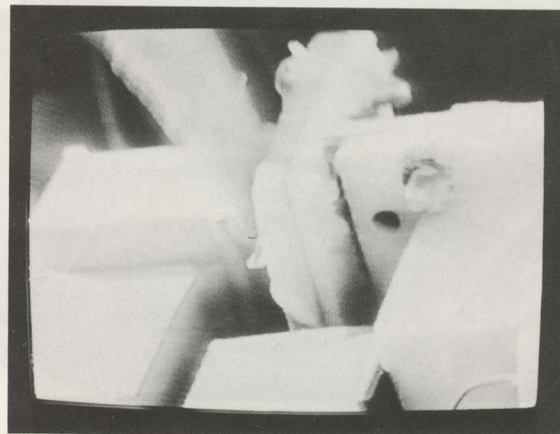
"THERE is nothing more frustrating than to have a new 'high tech appliance' and not feel comfortable with its use . . ."

BORESIGHT

ON THE TUBE . . .

2/21

55 versus 85 degree LNA test; can you make a 'small dish' work better with a top-grade LNA? **Microwave interference**; can you build a 'better antenna' to cut-down on TI? See it here. **AND**, will **SPACE** survive the off-shore 'switch' for original equipment? Rick Brown discusses here on Bore-sight.



Your Industry's Weekly
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BORESIGHT

ON THE TUBE ...

2/28

MESH antennas; are they on the 'endangered species list?' See how modern mesh engineers are working to keep their products in the forefront of technology.



Your Industry's Weekly
Video Showcase!

300,000 people but the largest community has only 44,000 people. It is a very dense rural population, bad for cable but excellent for TVRO. And I have competitive dealers, it seems, every 40 feet!

"I don't think I've got a single competitor who is a crook, or a liar, or dis-honest or who's trying to cheat the people. **But I've got a lot of competitors who just flat don't know what they are talking about.** For example, there's a guy down the street from me who says you can buy an 8 foot dish that will outperform a 12 foot, no matter how either is made or what either one is made of. **Who am I to discredit him???**"

"I find myself where I have to make a decision; do I shut up and hope the customer makes the right decision, or do I keep trying to re-enforce what I am saying and end up attacking the competition? You reach a grey area pretty soon; you find yourself attacking the honesty or the intelligence of the competitor because you find you have to refute the stories the customer has been told. And you know, you may educate and convince the customer that the competitor doesn't know what he is talking about, but that is no guarantee that the customer is going to believe you either."

TH(Texas)/ "And if you attack too strongly, then you lose your own credibility."

MW (Texas)/ "Let me give you another example. How many in this group are doing service calls for competitively installed systems? I'm not talking about bent actuator arms or broken LNAs but simply site-ins on a dish that refuses to track the arc. We average three to four calls a week from people who bought a competitor's system because it was cheaper and then after the system is installed the people find they can't get all of the birds or all of the channels and the guy they bought from won't **or can't** seem to make it work right."

TH(Texas)/ "Are you saying the system was cheaper because the equipment was cheaper, or because they didn't take the time to install it properly?"

"THE competition is so severe that dealers will say ANYTHING to get the sale . . ."

MW (Texas)/ "It was usually cheaper because they don't advertise, they don't carry an inventory, they may not have a real place of business. They sell a system, get in their pickup truck and run to Austin or Dallas to pick up that single system, and they put it in two days later."

PD (Texas)/ "This may not make everyone here happy, but I'd like to see more products which were customer installable. That won't make me as much money for installation, but I think it might make our service call-backs a whole lot easier to live with. I'd, in particular, like to see some after-market items which the customer could install himself. I think that items such as stereo processors offer the dealer good profit potential, and often people understand and want them at the initial time of system purchase; but they won't spend the extra money **at that time.**"

"I can't make enough on a stereo processor, for example, to allow me to drive 70 miles each way to take it out and hook it up, as an add-on or after-market sale. I'd move a lot more of this sort of equipment if it was clearly offered to the customer as something he could follow simple instructions to hook up himself. The manuals, if any come at all with such units, are not written for the layman."

QUESTION Two

"What my TVRO customers feel is the most frustrating to them is . . . And the responses.

LR (Texas)/ "No question the most frustrating thing about the system is the system itself! Many customers would only be happy if everything happened when they turned **one knob** or pushed **one button.** Their standard TV set works that way and they have spent several decades learning that this is how TV is supposed to work."

"Now some of the newer, top-end equipment offers almost one knob or one button control. But people who see it seldom want to pay the extra dollars to get those features. They want one knob or one button control in a low or mid-range priced unit. And I can't

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We started with the latest in satellite receiver technology, using two microprocessors, block down conversion, and infrared remote control. Then, we topped it off by fitting it into a compact, stylish case of true "set-top" dimensions with a large, easy to read LED display. And that's just for starters.

Two Microprocessors and More

Satellite positioning, polarity, and skew can be programmed and selected automatically. All programmed information is stored in the SR5000's permanent, non-volatile memory. What's more, the Regency receiver features a built-in SAW resonator modulator with channel 2 or 3 output, descrambler loop, signal strength meter, and composite or baseband audio and video outputs. Not to mention the remote control . . .

Full Function Remote Control

Every Regency SR5000 comes complete with a full function infrared wireless remote control that's very easy to operate. It lets you select channels (direct access or slew), select satellite positions,

raise, lower, or mute the volume, and fine tune the picture. All with only 20 keys.

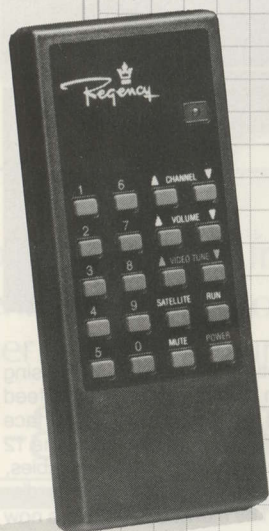
Block Conversion

The SR5000's advanced design employs a block down conversion system so you'll be sure to have the best possible picture year round (The Regency block system is stable within 2MHz from -30 to $+60^{\circ}\text{C}$). And it's ideal for selling multiple receiver systems.

The Price That Packs a Punch

Now for the good news. The SR5000, with all the features we've described, lists for \$699.95. So your cost will be lower than receivers like the Drake 240, the KLM VIII, or the Luxor 9550. Yet the SR5000 is backed by Regency, a company that's been around since 1947, a company that invented the transistor radio in 1954, a company with an established reputation in consumer electronics. And the company that designed and builds the SR5000 in America.

If this sounds like what you've been waiting for call us for more information or the name of the nearest Regency distributor at 1-800-428-1950.





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blame them.

"This is double-problem for us because as a dealer we try to purchase only equipment which we have found or believe will result in fewer service calls. You have to remember that in TVRO, customers are spread all over the countryside. It's not like cable TV where you can drive a few blocks and make a service call. Many of our customers are 100 miles or more round trip for us. So we make an extra effort to select brands and models which are as trouble free as possible. That also means as customer friendly as possible. There is nothing worse than spending four hours to drive 100 miles round trip and report back to the shop that the 'video invert switch' was pushed the wrong way. Boy, is that a waste of a day!

"We stay in the high-end stuff as much as possible and we investigate the servicing problems very closely before we take on a new line."

"WE average 3 to 4 service calls a week to fix a system sold by a competitor; systems that were installed improperly! . . ."

NB (Nebraska)/ "Brand identification. I have customers who shop around. They come in my store and then they go down to another dealer. Most will come back before they buy. Invariably, they will say something like 'I am confused; there are so many brands, just tell me which ONE is best'. And that's where I have to start all over with brand for brand and system for system comparisons. This takes a lot of time and it is very confusing to the people. I have found that I am forced to limit my own sales pitch so as to avoid 'information overload' for the customer. They DO get so

loaded down with information that they walk away with their heads swimming."

MW (Georgia)/ "My answer is still equipment reliability. People who have bought a system are too often frustrated by the equipment itself and the way it fails. We have to remember that to a brand new TVRO user, **everything about the system is a mystery**. They cannot be sure, because of the complexity of the controls, that the problem they perceive is not a failing on their part to operate the equipment properly. So when they finally do decide to call you to report a problem, they are doubly-frustrated because chances are they spent a day or two convincing themselves that they were not the cause of the problem. **Nobody wants to look stupid!**

"So repeated service calls is my response; when a customer has gone through his third or fourth motor drive, he is now convinced that the product you carry in this area is no-good and you are fighting a downhill battle to find an answer to his frustrations. Even the best of the motor drives and actuators 'glitch' on occasion and when a man has gone through three that had outright failures, you play heck trying to convince them that the 'glitch' in their fourth one is 'normal!'"

As we shall see here in March, the primary purpose of the dealer dialogue was to gain dealer feedback on a new service planned by United. However, present dealer problems with the merchandise they sell and the customer perception of that merchandise was key to the introduction of the new service.

"WE stay in the higher end stuff and investigate the servicing aspect very carefully before taking on a new line . . ."

GENSAT RECEIVER TEST

PIONEER Receiver

With all of the interest in BDC (block downconversion) receivers, and a belief that a majority of the receivers offered to dealers during 1985 will in fact employ the BDC design approach, we are this month looking at a BDC type receiver which actually preceded many of the others into the marketplace.

The full utility and promise of a modern BDC system is as follows:

- (1) By utilizing a relatively high 'IF' (such as 450-950 or the more accepted 950-1450 MHz region) the full band of transponders on any single polarization can be fed down a cable line. This means that **unlike normal 70 MHz (IF) receivers**, where the single transponder selection is made at the downconverter, in a BDC system the individual transponder selection is made at the receiver proper.
- (2) This allows each receiver connected to the antenna to **individually access** any of the transponders received by the LNA/feed and downconverted by the BDC. And this means **independent** program/transponder selection for **each** receiver in the system.

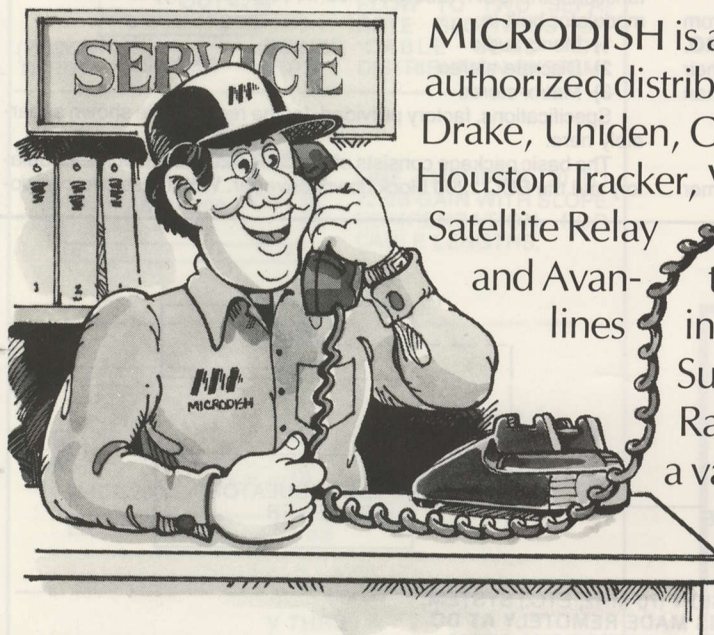


- (3) By marrying this system to a slightly more complex feed, using a dual polarization feed with both vertical and horizontal feed elements and independent LNAs, the single antenna surface can now provide separate feeds for the 12 vertical and the 12 horizontal channels. This goes down a **pair** of separate cables, in the system shown here, and there are parallel cable distribution systems in the building. The individual receivers now have independent access to **either** vertical **or** horizontal polarized transponder sets as well as independent access to any of the transponders on either polarization.

GENSAT Communications Corporation (1951 Alness Street, Downsview, Ontario, Canada M3J 2J1; 416/736-4555) first displayed a complete system using this type of approach at the Orlando SPACE show in November of 1983. It attracted modest interest, possibly because it was ahead of its time by a year or more. Others followed but GENSAT's lead has allowed them to also develop an entire family of

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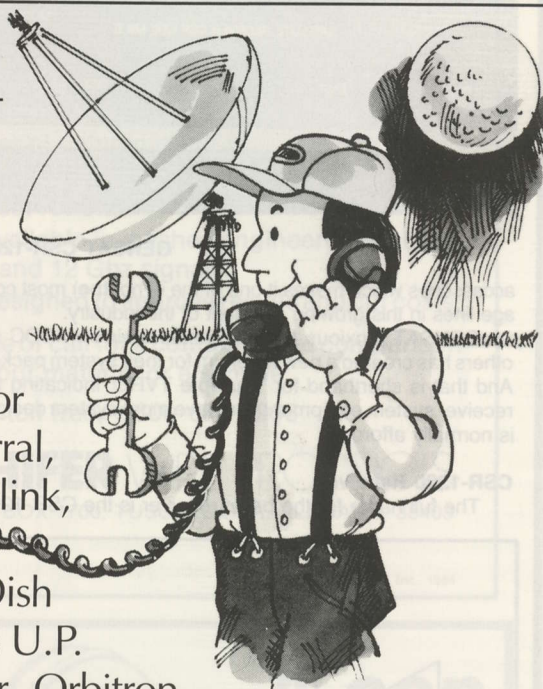
MICRODISH is an authorized distributor for Drake, Uniden, Chaparral, Houston Tracker, Videolink, Satellite Relay and Avantek. Dish lines include U.P.

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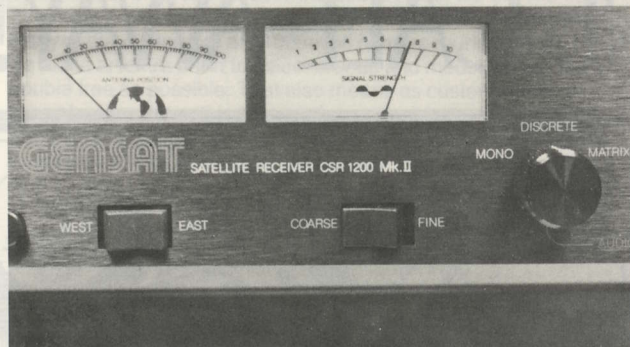


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GENSAT CSR-1200 Mk II front panel is 'grouped' by function.

accessories which makes it one of the (if not **the**) most complete package lines in this growing segment of the industry.

GENSAT, anxious to differentiate their own BDC systems from others has created a new acronym for their system package; **MTVRO**. And that is shorthand for '**Multiple TVRO**' indicating that with their receiver system equipment you have more system design choice than is normally afforded.

CSR-1200 Receiver

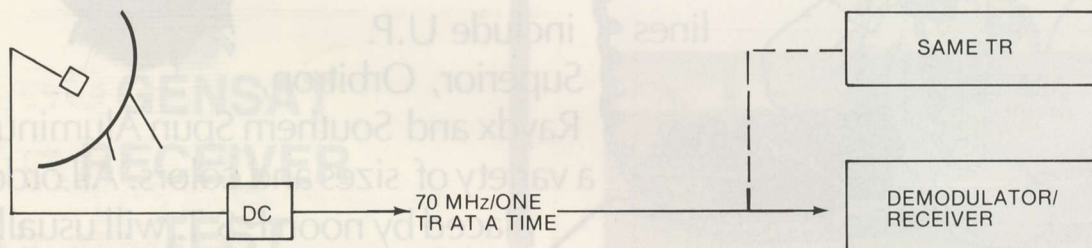
The full name for the basic receiver is the CSR-1200 Consumer

Stereo Receiver. This tells you that in addition to the normal video functions, the CSR-1200 also has three different types of audio demodulator built in:

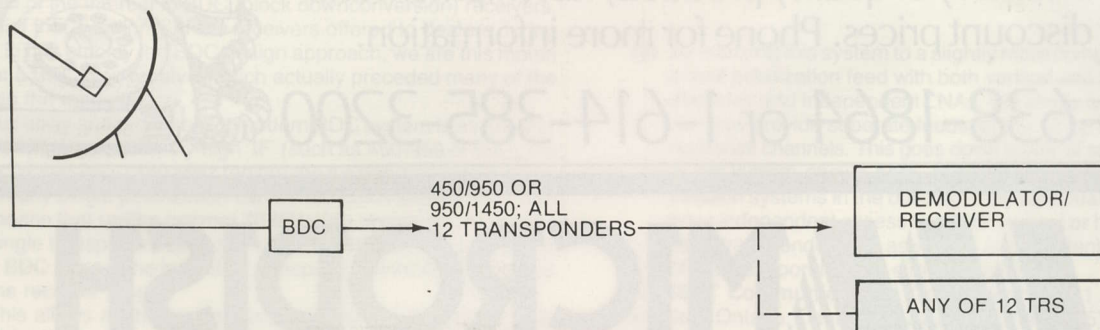
- 1) Mono audio
- 2) Discrete stereo
- 3) Matrix stereo

Specifications, factory provided, for the receiver are shown separately here.

The basic package consists of the CSR-1200 receiver (demodulator) and the BDC 1200 block downconverter. With these two compo-



WITH SINGLE CONVERSION (70 MHz, ETC.) SYSTEM, CHANNEL SELECTION IS MADE REMOTELY AT DC (DOWNCONVERTER) ON INSTRUCTIONS FROM DEMODULATOR

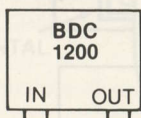


IN BDC SYSTEM, EACH DEMODULATOR MAKES INDEPENDENT, INDIVIDUAL TR SELECTION

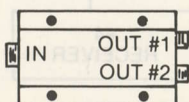
ment parts an installer can create a **single outlet system** from a single antenna. The primary advantage of a BDC system, however, is its ability to 'expand', growing beyond the single receiver to serve two or more receiver locations in the home. To do this properly requires 'bits and pieces' of accessory hardware which are often not available from the receiver supplier.

GENSAT (as well as DX and a handful of others) is the exception to 'this rule' making available a full line of standard and quite creative accessory parts. A **diagram here** indicates what is available and

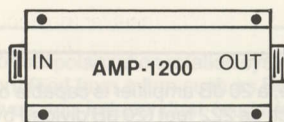
BDC SYSTEM PARTS



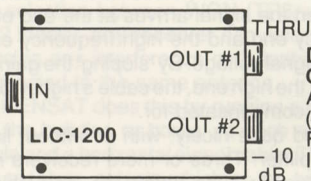
BLOCK DOWNCONVERTER; SHIFTS 3,700 TO 4,200 MHz (3.7 to 4.2 GHz) DOWN TO COMMON IF (950-1450 MHz). POWER FED THRU COAXIAL CABLE AT 'OUTPUT.'



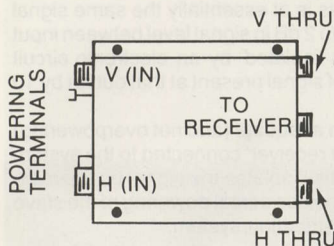
POWER SPLITTER; ALLOWS 950 TO 1450 MHz SIGNAL POWER TO FLOW TO TWO SEPARATE RECEIVERS OR 'CABLE LEGS' ON DISTRIBUTION SYSTEM.



LINE AMPLIFIER; 20 TO 22 dB GAIN WITH SLOPE COMPENSATION FOR CABLE LENGTHS.



DIRECTIONAL COUPLER; 10 dB 'DOWN' AT COUPLED OUTPUT (#2) WITH POWER FEED FROM (#1) OUTPUT TO INPUT.



VERTICAL/HORIZONTAL SELECTION SWITCH; SELECTS DESIRED POLARIZATION 'LINE' AND SWITCHES (THRU COUPLER) TO RECEIVER, PASSING SIGNAL ONTO NEXT RECEIVER ON 'THRU' LINE.

shows how each might be used in a multiple receiver installation.

The most common system allows two or more receivers to share the single antenna, **each receiver** having independent access to any of the same-polarity transponders as does any other receiver in the system. Normal practice is to take the BDC output signal (in the 950-1450 MHz range) and simply 'split' it into two parts using a **power splitter**. The power splitter is designed so that 50% of the available LNA/BDC signal power is spread into each of the two output ports. One of these ports is 'DC blocked' so that **operating power** to the BDC and LNA can be sent from **one receiver only**; the so-called

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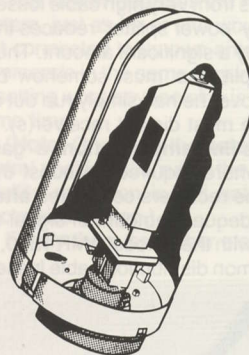
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A cap doesn't have to be ugly!

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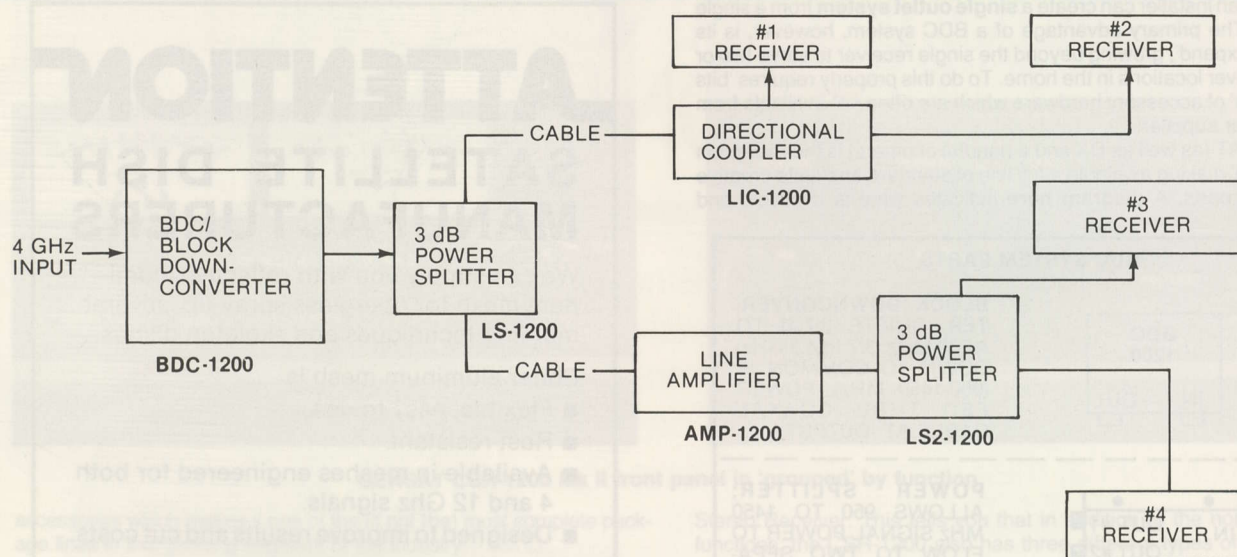
The SR 2900 is constructed of sturdy ABS plastic, and unlike most other caps, is U/V (ultra-violet) stabilized so it doesn't break down under sunlight. It fits almost any system, and comes individually boxed with mounting hardware included.

\$29.00/unit.

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Eastern U.S. customers order from Satellite Receivers, Ltd. of Green Bay, Wisconsin. Call toll free 1-800-556-8876 or call 1-414-432-5777

Western U.S. customers order from Warren Supply Company of Sioux Falls, South Dakota. Call toll free 1-800-843-9924 or call 1-605-336-1830



SINGLE ANTENNA WITH GENSAT SMATV PARTS
ALLOWS MULTIPLE RECEIVER ACCESS TO INDIVIDUAL
TRANSPONDER SELECTION

'master' receiver. This internal 'blocking' prevents DC powering 'accidents' which could 'blow a fuse' and render the system inoperative.

As we have discussed in previous articles in CSD (see page 40, December 01, 1984, as an example) any UHF (such as 950-1450 MHz) BDC output frequency range suffers from very high cable losses over relatively short distances; and every 'power splitter' reduces the effective length of the distribution cable by a significant amount. Thus too much cable, or too much 'power split loss' must somehow be compensated for or the installer will discover he has simply run out of signal before he stretches his line to the most distant receiver(s).

The answer to cable and split loss is **line amplification**; a 'gain block' stuck into the distribution line, where required, to boost the signal levels back up to a point where the receivers connected **after that point** will continue to receive an adequate amount of signal to perform properly. GENSAT handles this with their model AMP 1200, a 20 to 22 dB gain line amplifier. With common distribution cable losses

approaching 9 dB per 100 feet of cable, a 20 dB amplifier is capable of 'correcting for' cable lengths to as much as 222 feet (20 dB divided by 9 dB). The AMP 1200 also has a built-in 'cable slope equalizer' which simply means that the higher (i.e. greater) cable losses at the higher end of the band (nearing 1450 MHz) **are amplified more** than the lower frequencies closer to the 950 MHz band (where cable losses are lower). The net effect is that when the signal arrives at the end of a chunk of cable, the low frequency end and the high frequency end should be approximately level in signal voltage. By 'sloping' the gain of the amplifier, to favor more gain at the high end, the cable's higher loss at higher frequencies is properly compensated for.

Two receivers can be handled quite nicely, with or without line amplifiers, with a single power splitter. Three or more receivers require either multiple power splitters or even better yet, something called a '**directional coupler**'. This is a tool widely used in cable TV systems and it is a cable-feed-thru device which has one input, and two outputs. One of the two outputs is at essentially the same signal level as the input, losing typically 1 to 2 dB in signal level between input and output. The second output is 'isolated' by an electronic circuit which reduces the actual amount of signal present at that output by 10 dB. This is on purpose.

The isolated output provides an adequate (and not overpowering) amount of 'signal power' to a 'slave receiver' connected to the system through the directional coupler. It also isolates the signal on the main line from the slave receiver so that no accidental powering of the slave receiver can feed back into the distribution system.

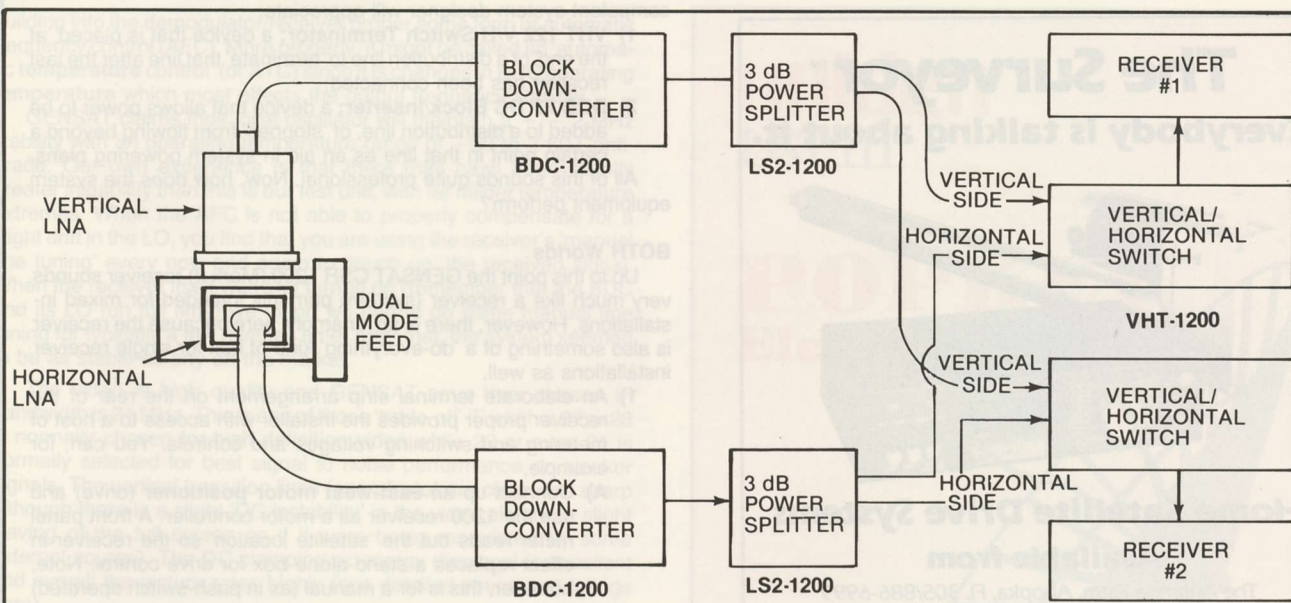
The beauty of an isolated directional coupler is that when you use this approach virtually anything done (on purpose or by accident) on that particular line, at the slave receiver, can not 'reflect back' into the system. The directional coupler prevents such 'feedback' and it makes a professional, carefree system for long-term operation.

There is one more 'primary part' in the GENSAT line which identifies it as **being different than** many of the BDC lines offered to dealers; the **V/H coupler switch**. Now, there are some installations where the user would like to have not only receiver-independent selection of all of the transponders on a single polarization, but receiver-independent selection of **any signal** from **either polarization**.

To do this you have to start at the feed to the antenna, replacing the



BDC-1200 downconverter is well weather protected and high quality.



GENSAT PROVIDES OFF-THE-SHELF PARTS FOR MORE COMPLEX BDC SYSTEMS SUCH AS INDEPENDENT ACCESS TO BOTH POLARIZATIONS AT INDIVIDUAL RECEIVERS

normal polarization rotation system with a dual-mode (or two polarization) feed from a firm such as Boman or Chaparral. This type of feed gives you independent feeds from the vertical AND the horizontal signals, **simultaneously**. This requires two LNAs (one for each) and in the wired portion of the system, two separate cable plants; one for horizontal and one for vertical. A diagram here illustrates.

However, at the individual receivers, how does the viewer make the selection between WGN (TR3/vertical) and SPN (TR6/horizontal)? Ideally, **any receiver** can select **any signal** on the bird without causing any interference or 'priority selection' to any other receiver connected to the same antenna.

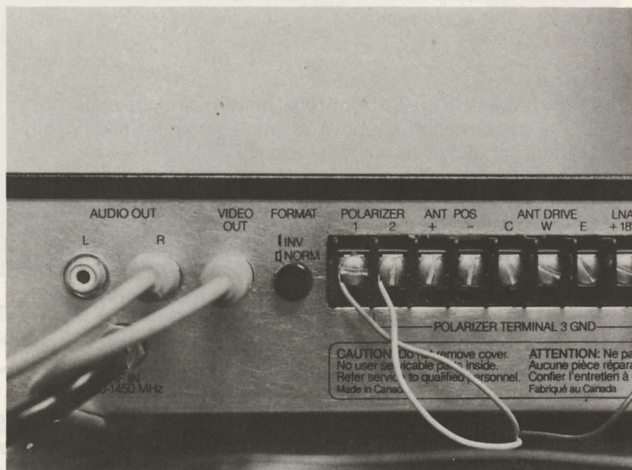
GENSAT does this by running a pair of distribution lines throughout the building or home. At each receiver there is a vertical signal cable and a horizontal signal cable. Then the receiver, with a switch on the receiver, selects which of the two formats is required by simply pushing a button.

The 'secret' here is the VHC-1200 V/H 'coupler switch'. This is actually two items in one; a directional coupler (similar to the LIC-1200) and a fast-acting switch which flip-flops between the vertical polarized signal line and the horizontally polarized signal line on viewer command.

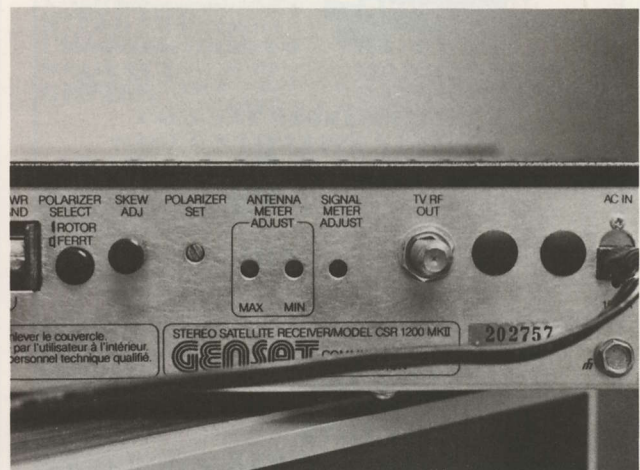
The viewer operates the receiver, as a 'slave unit' on a MTVRO system, just as he or she would if the receiver were a single master unit connected to its own antenna. In effect, the receiver follows the commands in the same way in either case. Except it does this without upsetting what anyone else is watching from the same antenna at the same time.

(Note: Of course the **satellite** selected by the master receiver or control position still 'rules' the master program selection and multiple satellite reception is still not possible; a function of antenna, not electronics design.)

Finally there are other standard-line 'bits and pieces' which any



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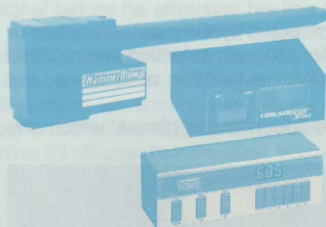
The Antenna Farm, Apopka, FL 305/886-6999
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Satellite Video Services, Catskill, NY, 518/678-9581
Carolina Satellite Systems, Wilmington, NC, 919/395-1167
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competent system designer will appreciate:

- 1) **VHT 122 V/H Switch Terminator**; a device that is placed 'at the end' of a distribution line to 'terminate' that line after the last receiver has been connected;
- 2) **DCB FF DC Block/Inserter**; a device that allows power to be added to a distribution line, or 'stopped' from flowing beyond a certain point in that line as an aid in system powering plans.

All of this sounds quite professional. Now, how does the system equipment perform?

BOTH Worlds

Up to this point the GENSAT CSR 1200 (Mark II) receiver sounds very much like a receiver (system) primarily intended for mixed installations. However, there is an 'anomaly' here because the receiver is also something of a 'do-everything' kind of box for single receiver installations as well.

- 1) An elaborate terminal strip arrangement on the rear of the receiver proper provides the installer with access to a host of metering and switching voltages and controls. You can, for example,
 - A) Connect up an **east-west motor positioner** (drive) and use the 1200 receiver as a motor controller. A front panel meter reads out the 'satellite location' so the receiver in effect replaces a stand-alone box for drive control. Note, however, this is for a manual (as in push-switch operated) motor drive and not a memory drive system.
 - B) Virtually any kind of polarizer gadget available on the market can be accommodated on the rear terminal strip connection points. A Mag (netic) unit, a probe unit (such as Omni) or a servo motor unit (such as Chaparral or Boman) are easily connected directly to the receiver interfacing. Then when you change polarizations with the front of receiver buttons, you are also changing the polarization mechanism at the antenna. Note that a skew adjustment is available on the rear apron of the receiver.
- 2) The receiver has a perhaps unique signal level metering system. There are **two** 'S' meter positions, switch selected on the front panel. In the 'coarse' position the full scale of the meter corresponds to a 60 dB meter range. That is more than adequate to cover the variations one will find between the very weak and the very strong signals. However, in the 'fine' position the full scale meter 'window' or 'range' is **now 3 dB**; and that means that in the fine position the user can tweak the antenna, feed and everything else to within a 10th of a dB or better. This dual-range meter is very handy and an excellent concept.
- 3) Powering for the BDC and the LNA are carried through the normal IF input coaxial cable on the rear apron. However, there are external LNA/BDC voltage terminals also available (+ 18 VDC) on the strip for wiring up external line amplifiers and a host of other equipment.

OPERations

The 1200 receiver is an 'up front' receiver with all of the necessary controls. The performance is above average for video and slightly below average for audio, as we shall explain.

Like many other receivers with a very high local oscillator frequency (5.150 GHz in this case), GENSAT elects to leave the BDC portion of the package running (as in 'being on') at all times when the receiver line cord is plugged into the wall outlet. This means that there is essentially no 'warm-up drift' of the receiver's local oscillator (at 5.150 GHz) since the LO is always running. Turning the receiver on and off turns on and off the demodulator proper, **only**.

This is one way around frequency instability which is a definite problem faced by BDC (and other) receiver manufacturers. All local oscillators have 'drift' with temperature changes and time; they are not inherently stable under **all** types of conditions. One way to make them **seem more stable** is to 'heat them up' by allowing the circuits to run full time; once they reach a normalized operating temperature, they become reasonably stable(*).

Receiver manufacturers accept that there will be some instability with the very high LO and they attempt to compensate for this 'drift' by

building into the demodulator/receiver proper some form of automatic frequency control (AFC). More properly, it might be called an 'automatic temperature control' (or ATC) since it is changes in BDC operating temperature which most effects the output frequency stability.

GENSAT claims their local oscillator will maintain a ± 2 MHz stability with an operating temperature range of -50 to $+60$ Centigrade. Our own experience is that there may have been slightly greater instability than this is our test unit, with far milder temperature extremes. When the AFC is not able to properly compensate for a slight drift in the LO, you find that you are using the receiver's 'manual fine tuning' every now and again to 'touch up' the received signal. When the receiver itself was first turned on (remember that the BDC and its LO run full time) we found we had to do some manual fine tuning for typically a few minutes time. After that, the system seemed to be as stable as any on the market.

The video is high quality and GENSAT says their chosen IF bandwidth is 24 MHz. This is one of those 'trade-off' IF widths; 27 or 28 is normally chosen for high definition video while 22 or even 21 is normally selected for best signal to noise performance on weaker signals. The vertical transition lines (see photo) are clean and sharp although there is a slight 'DC instability' in the video picture (a slight waving of the full screen as if it were being modulated by some external source). The DC clamping or energy dispersal is excellent and overall the picture rates highly (see detailed specs and ratings here).

The audio was not as good as we would have liked. The audio system works in this way:

- 1) In the mono mode, you have a 5.0 to 8.0 MHz subcarrier tuning range. In this range the audio bandwidth is automatically set at **180 KHz**. You select the subcarrier frequency with a continuous tuning knob.
- 2) In the discrete (stereo) mode you have two outputs from the two components of the stereo subcarrier signal. You are automatically in the same narrow (**180 KHz**) mode or bandwidth in this position and you tune in the discrete stereo with the same control as with mono.
- 3) In the matrix stereo mode, you have two separate subcarrier

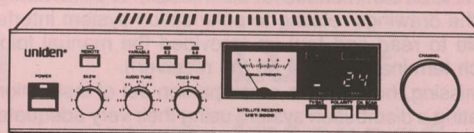


VERTICAL transitions are good but slight 'waiver' is found in video.

*/ CSD measured the DC voltage to the downconverter/LNA at 22.3 volts when the receiver was 'turned on' and 27.4 volts when the receiver was turned off. Power supply regulation, plus a possible 'overvoltage condition' to the LNA is of **some concern** here. The knee-jerk reduction in voltage (27.4 to 22.3 volts) when the receiver is turned on may also be expected to have a minor 'detuning' effect on the local oscillator in the downconverter.

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tuning knobs to adjust; the 'A' tuning control is adjusted for the normal 'left' audio channel while the 'B' tuner is adjusted for the 'right' channel. Oh yes; in the discrete mode the bandwidth is now, automatically, **280 KHz**.

Selecting an audio bandwidth and maintaining that bandwidth in production is a tough assignment. When the audio bandwidth is too narrow, the audio has a muddy or indistinct sound to it. When the audio bandwidth is too great, the audio has noise in it and may sound artificially 'enhanced' on the high frequency end.

It is possible with the CSR-1200 to use the wider bandwidth (280 KHz) position with the mono signals; you simply dial up the matrix (which is also wider bandwidth) mode and tune subcarrier tuner A to the desired audio signal. Unfortunately, this only works when you are processing the new video and audio through the channel 3 (or 4; switchable) RF (NTSC) output of the receiver since the RF remodulator derives its audio drive from the sub-carrier A tuner. If you are recovering audio directly, and using the baseband audio output jacks (a left and a right for feeding to a sound system or outboard modulator), you are stuck with the 180 KHz bandwidth even though the signals may be considerably broader than this.

In our view, the 180 KHz 'narrow' position is not narrow enough for the truly narrow bandwidth audio signals (such as many found on TR3 and TR6 of F3R) and in the wide position, not wide enough for some of the maverick audio signals such as Disney. And by not being able to easily switch to the 280 KHz wide position for mono signals, even the more commonly viewed services such as CBS (and Disney, et al) tend to be indistinct and 'muddy'. This effect is emphasized when you are feeding the audio into a small monitor with a small speaker.

Instructions

The instruction manual with the 1200 Mark II receiver is well illustrated, clear and concise. We found only one error which gave us concern; the wiring designation for the pulse and bias on the rear terminal strip was reversed from the printed instructions and we had to swap the two wires at the receiver to make the servo type polarizer play properly.

GENSAT is to be commended for the manual, for as far as it goes; in particular the drawings relating to polarization system interfacing are impossible to read and foul up (provided the manual told you correctly which terminal did what on the receiver!).

What is missing, however, is a companion set of instructions or guide for creating a distribution system using their very adequate and very well thought out series of accessory parts.

The typical TVRO installer has never worked with power dividers, directional couplers, line amplifiers and terminators previously. A 'booklet' describing their use and placement, and what the limitations are to cable length and splitters would be very beneficial to anyone setting out for the first time to make a multiple receiver BDC system 'fly'. Instructions given in the recently run 8-part series in CSD aside, a full MTVRO or mini-SMATV manual is long overdue in the industry.

Impressions

The GENSAT package has many pluses going for it. We have picked on a few of the negatives since our primary job here is to help you better understand any new piece of equipment and to warn you, in advance of purchase, the magnitude of design or operational shortcomings. **None of the problems we found and discussed here are critical nor uncorrectable.** There are no 'perfect products' yet in this field and every design can be improved on in some way.

Perhaps there are two very important factors relating to the GENSAT package which deserve special mention:

- 1) **Price/** the unit is priced far lower than one might expect, particularly after looking at the features available and the great design latitude the package offers to the TVRO installer.
- 2) **Versatility/** while GENSAT would prefer that you make every installation a totally GENSAT receiver and hardware system, the fact is that they have made it very easy for the installer to 'mix' 950/1450 MHz range receivers in the same system. Perhaps the first place you might want to do this is in your own showroom; one common antenna with a common down-converter (BDC-1200 by GENSAT) followed by a mini-cable

GENSAT CSR 1200 MK II SPECS

Downconverter:

INPUT RANGE	3.7 to 4.2 GHz
INPUT LEVELS	Not specified
INPUT MATCH (loss)	1.4:1 (15.6 dB)
IMAGE REJECTION	Not specified
CONVERSION GAIN	12 dB (nominal)

Receiver:

INPUT RANGE	950 to 1450 MHz
INPUT LEVELS	-20 dBm to -60 dBm
INPUT MATCH	Not specified
IMAGE REJECTION	18 dB (nominal)
NOISE BANDWIDTH	24 MHz specified
THRESHOLD	'better than 8 dB C/N' claimed (*)
VIDEO OUTPUT	1 volt peak to peak, 75 ohms
DISPERSAL CLAMP	Not specified (**)
VIDEO S/N	Not specified (***)
DIFFERENTIAL PHASE	Not specified
DIFFERENTIAL GAIN	Not specified
FREQUENCY RE-SPONSE	0 to 4.2 MHz (ripple, slope not specified)

SUBCARRIERS	Tuneable 5.0 to 8.0 MHz
HARMONIC DISTORTION	1% max specified

AUDIO BANDWIDTH	180 KHz narrow, 280 KHz wide (see text)
AUDIO S/N	Not specified
FREQUENCY RESPONSE	50 Hz to 15 KHz
POWERING	Stand-alone, external 117 VAC to 18.5 VAC power pack capable of 1.5 AMPS

CONNECTORS

RF OUTPUT

*CSD measured static video threshold of 10 dB CNR.

**CSD measured dispersal clamping in excess of 40 dB.

***CSD measured 48 dB SNR with 10 dB CNR.

PRICE	\$529 dealer net with BDC (\$429 receiver alone)
SOURCE	GENSAT COMMUNICATIONS CORPORATION, 951 Alness Street, Downsview, Ontario M3J 2J1, Canada (416/736-4555).

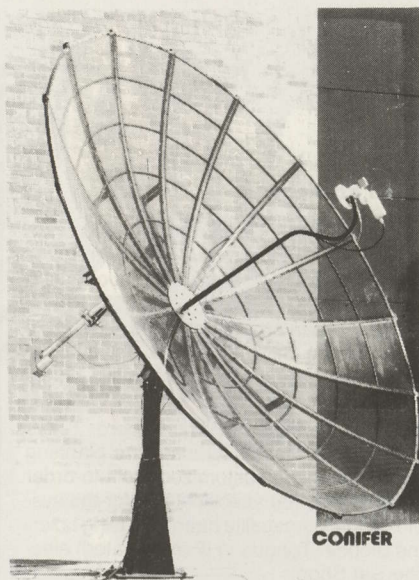
CSD RATINGS

1) Video Sensitivity	In top 25% of all units tested
2) Video Color Quality	In top 25% of all receivers tested
3) Video stability	In top 30% of all receivers tested
4) Audio Sensitivity	In top 40% of all receivers tested
5) Audio Quality	In top 50% of all receivers tested

distribution system using the required power splitters, directional couplers and even vertical/horizontal switch couplers.

In a customer environment, a BDC distribution system designed around the GENSAT 'bits and pieces' will make it possible for you to enlarge a customer's home system by adding virtually any IF-compatible receiver(s) in the future. This is not an insignificant feature since it means that you can do a first class mini-SMATV wiring job on a residence or multiple outlet facility one time and then allow the receiver demands to grow as need be.

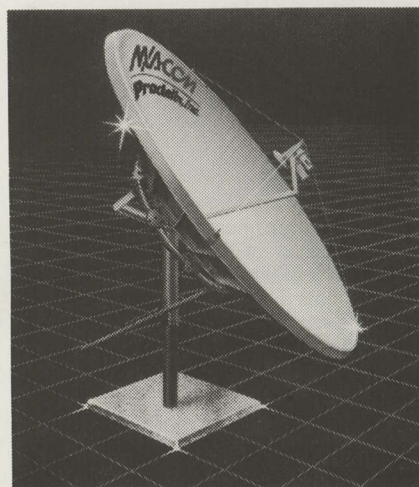
BDC systems, using the now semi-universally adopted 950 to 1450 MHz 'band', will be an even more important factor in system design during 1985 than in previous years. The BDC approach is here and now it is up to the installing dealer to both understand it and to employ it where possible to provide even greater viewer utility of the satellite signals available.



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NEW PRODUCTS/ continued from page 7

and then moving 'up to 40 feet away' with a TV set that operates on its internal rabbit ears or through an outside antenna to view the programming, the system also works with TVRO receivers that output to the TV sets on either channel 3 or 4.

(*) While the manufacturer may have an answer to the 'legality' of low power channel 3 or 4 broadcasting units at the FCC, this publication does not and cannot recommend using such a unit until its legal status is clarified.

THE SAT SHOP (2526 South Henderson Blvd., Kilgore, Texas 75662; 214/983-3524) has an answer to TVRO installers planning motel, hotel, condominium installations; a customized, built-to-order mini-SMATV **headend**. The firm takes the specifications for the system and puts together a professional off-satellite headend using Lowrance satellite electronics and Blonder Tongue VHF (modulated) Electronics. Full details from The Sat Shop.

SAT-PAK (1837 N. Canal Blvd., Redmond, Oregon 97756; 503/923-0467) has broken ground for a new corporate building to house offices, computer equipment, production lines and warehousing. SAT-PAK manufactures LNA and other connecting cables for the TVRO industry and currently employs 15 people according to Steven Shepperd, firm president.



SAT-PAK breaks new territory

SPACE CRAFTS, INC. (Suite 202, 4270 Main St., Bridgeport, Ct. 06606; 203/372-8810 or 371-1119) has an unusual marketing tool for TVRO dealers, distributors or OEMs; small plastic TVRO antenna models. The 4.5 inch diameter dish (by 6 inch high with stand) packages 'down' for shipping. Dish formats available include solid, mesh and 'decagon' and the user's corporate name can be imprinted on the stand-up base. The firm is supplying models to all U.S. Senators and Congressmen, through SPACE, to help acquaint the elected officials with the home TVRO industry.

GALAXY BROADCAST SERVICES (GBS/Lamplighter Plaza, Kulpville, Pa. 19443; 215/368-2800) has created a 'spring dating' financing program for distributors of the firm's 4 foot antenna systems. Shipments made during February and March are payable in equal payments during April, May and June under the financing program.

TECHNICORP, INC. (4285 Gate St., San Antonio, Texas 78217; 512/654-9390) appears to have identified an important area of TVRO hardware where new products are needed; BDC distribution systems. The firm announces they are in production with the following products: 20 dB gain (BDC) amplifiers, power block and non-blocked; DC blocks with and without power insertion; 2-3 and 4 port amplified splitters (+ 4 dB each port); blocked and non-blocked power splitters, line terminators. Additionally, they are also manufacturing lightning and transient surge suppressors, a digital electronic inclinometer, block downconverters for either 450-950 or 950-1450 MHz and a line of LNA and LNB polarity switchers.

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Don't Try This Stunt At Home.



Mark Fator photographer

This was fun. It was a lot of work too, but it was fun seeing if we could actually do it.

It began as a little sketch on the margin of a note pad, and after a great deal of thought and a huge amount of convincing — Mike loaned us his car.

We parked a real live Mercedes Benz 300D on top of an absolutely box-stock Paraclipse antenna.

The 3.8 meter Paraclipse was assembled meshless and placed face down in a shallow pool of water. We fabricated a special steel H-shaped



rack to provide a flat surface at the balance point. The car's forward weight bias was counter-balanced with 300 pounds of steel plate in the trunk.

The total dead weight was 4,522 pounds. Total deflection under load was 1 inch and when the whole ordeal was over, the hub plate was only .45" closer to the floor than before.

Last year, during a "destruction test," we dropped 5,200 pounds of steel stock on the same antenna; so we weren't really surprised when this stunt worked.

What does it prove? Just one thing: We build a very, very strong antenna.

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